APPENDIX 120.I
PATIO COVERS

SECTION 120.I101 GENERAL
120.I101.1 General. Patio covers shall conform to the requirements of 780 CMR 120.I. Patio covers shall be permitted to be detached from or attached to dwelling units and other Use Group structures. Patio covers shall be used only for recreational, outdoor living purposes and not as carports, garages, storage rooms or habitable rooms. Openings shall be permitted to be enclosed with insect screening, approved translucent or transparent plastic not more that 0.125 inch (3.2 mm) in thickness, glass conforming to the provisions of Chapter 53 for one- and two-family dwellings or chapter 24 for all other USE Groups or any combination of the foregoing.

SECTION 120.I102 DEFINITIONS
120.I102.1 General. The following word and term shall, for the purposes of this appendix, have the meaning shown herein.
PATIO COVERS. One story structures not exceeding 12 feet (3657 mm) in height. Enclosure walls shall be permitted to be of any configuration, provided the open or glazed area of the longer wall and one additional wall is equal to at least 65 percent of the area below a minimum of 6 feet 8 inches (2032 mm) of each wall, measured from the floor. Openings shall be permitted to be enclosed with:
(1) insect screening,
(2) approved translucent or transparent plastic not more than 0.125 inch (3.2 mm) in thickness,
(3) glass conforming to the provisions of Section 5308, or Chapter 24 as applicable or
(4) any combination of the foregoing.

SECTION 120.I103 STRUCTURAL PROVISIONS
120.I103.1 General. Patio covers shall be designed and constructed to sustain, within the stress limits of 780 CMR, all dead loads plus a minimum vertical live load of 10 pounds per square foot (0.48 kN/m^2) except that snow loads shall be used where such snow loads exceed this minimum. Such patio covers shall be designed to resist the minimum wind and seismic loads set forth in 780 CMR, as applicable.

120.I103.2 Footings. Patio covers shall be erected on permanent supports extending a minimum of four feet (1.2m) below finished grade except when such supports are placed on solid rock or otherwise protected from frost. All patio cover supports shall be designed for the loads required carried.

120.H104 LIGHT AND VENTILATION/EMERGENCY EGRESS
120.H104.1 General. Exterior openings required for light and ventilation shall be permitted to open into a patio structure conforming to 780 CMR 120.I provided that the patio structure shall be unenclosed if such openings are serving as emergency egress or rescue openings from sleeping rooms. Where such exterior openings serve as an exit from the building, the patio structure, unless unenclosed, shall be provided with exits conforming to the provisions of 780 CMR 10 or 780 CMR 53, as applicable.

SECTION 120.I105 SPECIAL PROVISIONS FOR ALUMINUM SCREEN ENCLOSURES IN HURRICANE–PRONE REGIONS

120.I105.1 General. Screen enclosures in hurricane–prone regions shall be in accordance with the provisions of this Section.

120.I105.1.1 Habitable spaces. Screen enclosures shall not be considered habitable spaces.

120.I105.1.2 Minimum ceiling height. Screen enclosures shall have a ceiling height of not less than 7 feet (2134 mm) for one- and two-family detached dwellings and 7 feet six inches (2286 mm) for all other applications.

120.I105.2 DEFINITIONS

120.I105.1 General. The following word and term shall, for the purposes of this appendix, have the meaning shown herein.

SCREEN ENCLOSURE. A building or part thereof, in whole or in part self–supporting, and having walls of insect screening and a roof of insect screening, plastic, aluminum, or similar lightweight material.

120.I105.3 SCREEN ENCLOSURES MINIMUM SPECIFICATIONS

120.I105.3.1 Thickness. Actual wall thickness of extruded aluminum members shall be not less than 0.040 inches (1.02 mm).

120.I105.3.2 Density. Screen density shall be a maximum of 20 threads per inch by 20 threads per inch mesh.

120.I105.4 DESIGN

120.I104.1 Wind load. Structural members supporting screen enclosures shall be designed to support minimum wind loads given in Table 120.I104.1(1) and 120.I104.1(2). Where any value is less than 10 psf (0.479 kN/m^2) use 10 psf (0.479 kN/m^2).

TABLE 120.I104.1(1)
DESIGN WIND PRESSURES FOR ALUMINUM SCREEN ENCLOSURE FRAMING WITH AN IMPORTANCE FACTOR OF 0.77[a,b,c]

Load Case	WALL	Basic Wind Speed (mph)											
		100		110		120		130		140		150	
		Exposure Category Design Pressure (psf)											
		C	B	C	B	C	B	C	B	C	B	C	B
A[d]	Windward and leeward walls (flow thru) and windward wall (non-flow-thru) L/W = 0-1	12	8	14	10	17	12	19	14	23	16	26	18
A[d]	Windward and leeward walls (flow thru) and windward wall	13	9	16	11	19	14	22	16	26	18	30	21

	(non-flow-thru) L/W = 2												
B[e]	Windward: Non-gable roof	16	12	20	14	24	17	28	20	32	23	37	26
B[e]	Windward: Gable roof	22	16	27	19	32	23	38	27	44	31	50	36
	ROOF												
All[f]	Roof-screen	4	3	5	4	6	4	7	5	8	6	9	7
All[f]	Roof-solid	12	9	15	11	18	13	21	15	24	17	28	20

For SI: 1 mile per hour = 0.44 m/s

a. Values have been reduced for 0.77 Importance Factor in accordance with 780 CMR 1604.5 and ASCE-7

b. Minimum design pressure shall be 10 psf and otherwise governed in accordance with 780 CMR 1609, inclusive / If a higher design pressure is determined, then that higher design pressure shall be utilized.

c. Loads are applicable to screen enclosures with a mean roof height of 30 feet or less. For screen enclosures of differential heights, the pressures given shall be adjusted by multiplying the applicable pressure from 780 CMR Table 120.I104.1(1) by the adjustment factor given in 780 CMR Table 120.I104.1(2).

d. For Load Case A flow-thru condition, the pressure given shall be applied simultaneously to both the upwind and downwind screen walls acting in the same direction as the wind. The structure shall also be analyzed for wind coming from the opposite direction. For the non-flow thru condition, the screen enclosure wall shall be analyzed for the load applied acting toward the interior of the enclosure.

e. For Load Case B, the appropriate Table 120.I104.1(1) pressure multiplied by the projected frontal area of the screen enclosure is the total drag force, including drag on screen surfaces parallel to the wind, which must be transmitted to the ground. Use Load Case A for members directly supporting the screen surfaces perpendicular to the wind. Load Case B loads shall be applied only to structural members which carry wind loads from more than one surface.

f. The roof structure shall be analyzed for the pressure given occurring both upward and downward.

TABLE 120.I104.1(2)
HEIGHT ADJUSTMENT FACTORS

Mean Roof Height (ft)	**Exposure**	
	B	**C**
15	1	0.86
20	1	0.92
25	1	0.96
30	1	1.00
35	1.05	1.03
40	1.09	1.06
45	1.12	1.09
50	1.16	1.11
55	1.19	1.14
60	1.22	1.16

For SI: 1 foot = 304.8 mm.

120.I104.2 Deflection limit. For members supporting screen surfaces only, the total load deflection shall not exceed l/60. Screen surfaces shall be permitted to include a maximum of 25 percent solid flexible finishes.

120.I104.3.3 Importance factor. Utilizing ASCE 7, as referenced in 780 CMR 1604.5, the wind factor for screen enclosures shall be 0.77.
120.I104.3.4 Roof live load. The minimum roof live load shall be 10 psf (0.479 kN/m^2) except that snow loads shall be used where such snow loads exceed this minimum.